

**Appl. No. 10/616,058**  
**Amdt. dated July 15, 2005**  
**Reply to Office Action dated May 17, 2005**

## AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

39. (Currently Amended) A reactor system comprising a riser reactor having a first end and a second end, the first end of the riser reactor having a feed inlet, the second end of the riser reactor having a diameter greater than that of the first end to impart a superficial gas velocity of 1-20 m/sec and the second end being externally connected to a disengaging zone, the disengaging zone having a first catalyst discharge line and a second catalyst discharge line, the second catalyst discharge line being in fluid communication with a regenerator, and the regenerator having an inlet for injecting a regeneration medium and an outlet line for discharging regenerated catalyst, wherein the first catalyst discharge line and the outlet line of the regenerator are in fluid communication with the first end of the riser reactor, and a catalyst cooler in communication with the regenerator, wherein the outlet line of the regenerator is in fluid communication with the catalyst cooler, and the catalyst cooler comprises a first catalyst discharge line coupled to the first catalyst discharge line of the disengaging zone and a second catalyst discharge line coupled to the regenerator for recycling regenerated catalyst to the regenerator.

40. (Previously Presented) The reactor system of claim 39, wherein the disengaging zone comprises at least one cyclone separator for separating catalyst from product.

41. (Previously Presented) The reactor system of claim 40, wherein the cyclone separator has a catalyst discharge end and a product discharge end, and the product discharge end is in fluid communication with a product outlet line at a second end of the disengaging zone.

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42. (Previously Presented) The reactor system of claim 39, wherein the disengaging zone is in fluid communication with a stripping zone, with the second catalyst discharge line being located below the stripping zone.

43. (Previously Presented) The reactor system of claim 42, wherein the stripping zone is located within the disengaging zone.

44-45. (Canceled)

46. (Previously Presented) The reactor system of claim 39, further comprising a second feed inlet for providing feed to the second end of the riser reactor.

47. (Previously Presented) The reactor system of claim 39, wherein the second feed inlet is located at a juncture between the first end and the second end of the riser.